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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/507,366

05/18/2005

Chiaki Kobayashi

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EXAMINER

MIYOSHI, JESSE Y

ART UNIT

PAPER NUMBER

2809

MAIL DATE

DELIVERY MODE

08/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/507,366

Applicant(s)

KOBAYASHI ET AL.

Examiner

Jesse Y. Miyoshi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/20/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/20/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/20/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 17, lines 6-8 are repetitive/unclear where it states "communicates between the cavities 10 in the sensor sections 4 and between the cavity 10 of the sensor sections 4 and the second cavity 22 of the...", the recitation of "cavities 10 in the sensor section 4" and "cavity 10 of the sensor section 4" was unclear as to whether their recitations were directed to the same cavity/sensor section or to the adjacent cavity/sensor section or if it was mistakenly repeated.

Page 24, line 13; "...saved apace..." should be replaced with "saved space".

Page 31, line 6. "...periphery are exists..." should be replaced with "periphery exists".

Appropriate correction is required.

2. The abstract of the disclosure is objected to because the abstract contains more than 150 words. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

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disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 8, 9, 11, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by DeConde et al. (U.S.6,889,565; hereinafter "DeConde").

Re claims 1, 8, 9, 11, 12 and 13: DeConde teaches a pressure sensor ("fingerprint sensor 20 comprises an array of switches" see column 3, line 7) comprising: plural first wires and plural second wires intersecting with each other in arrangement ("metallic leads arranged in an MxN orthogonal grid" column 3, lines 17-21); and sensor sections provided in the vicinities of the respective corresponding intersections ("each switch corresponds to an intersection of row line and column line" see column 3, lines 12-13), wherein each of the sensor sections includes: a first electrode electrically connected to the first wire ("lower electrode 50 is electrically connected to row lead 44" see column 6, lines 41-42); a second electrode disposed opposite to the first electrode ("upper electrode 66" see column 6, lines 34-36); and a

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cavity formed between the first electrode and the second electrode ("Gap 54" see column 6, line 5), and the second wires work additionally as the second electrode in the sensor sections (46, 66, figure 6A).

It is the Examiner's position that the recitation "the second wires work additionally as the second electrode in the sensor sections" of claim 1 is not given any patentable weight due to the recitation being an intended use of the claimed invention and does not result in a structural difference between the claimed invention and the prior art. The column lead 46 is electrically connected to upper electrode 66 and is therefore is capable of working as "the second electrode", as recited in the claim.

Re claim 8 DeConde teaches the pressure sensor according to claim 1, wherein the first wires are connected to the first electrodes through contact layers higher in resistance than the first wires ("resistor strip 70 is preferably made of a high-resistivity material" "row lead 44 is preferably made of highly-conductive materials" see figure 4a and column 8, lines 55-56 and 65-66).

Re claim 9 DeConde teaches the pressure sensor according to claim 8, wherein the contact layers are formed with a silicon layer mixed with a conductive impurity ("resistor strip 70 is preferably made of highly resistive material such as doped silicon" see column 8, lines 55-57).

Re claims 11 and 12 DeConde teaches the pressure sensor according to any claim 1, wherein the first wires are connected to the first electrodes through switching elements; and the pressure sensor according to claim 11, wherein the switching elements are thin film transistors ("a large resistive device is preferably placed in series

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with each switch **40** of sensor **20** in the array [such as] field effect transistors, thin film transistors" see column 4, lines 10-17).

Re claim 13 DeConde teaches the pressure sensor according to claim 1, wherein a scanning signal is sequentially supplied onto the plural first wires ("an electrical circuit such as a counter, shift register and operational amplifier attached to a multiplexer combined with current/voltage detectors can be used to detect the output current or voltage from the row/column being addressed; each switch can be polled individually" see column 3, line 66-column 4, line 5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeConde as applied to claim 1 above, and further in view of Ganapathi et al. (US 6,578,436 B1; hereinafter "Ganapathi"). The teaching of DeConde has been discussed above.

However, DeConde fails to specifically teach the first wires having larger width portions in respective spaces between adjacent sensor sections, wherein the first wires are connected to the first electrodes at the larger width portions.

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Ganapathi teaches the first wires having larger width portions in respective spaces between adjacent sensor sections (see figure 3 and "row leads **20**" column 7, lines 48-49), wherein the first wires are connected to the first electrodes at the larger width portions (see figures 4, 5a, 5b and "Vias **40** are patterned and etched to provide for electrical contact to the leads; lower electrode **50** is electrically connected to row leads" column 7, lines 58-67).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the row leads having wide and narrow portions, where the wide portions of the lead are used to connect to the first electrodes as taught by Ganapathi to the teachings of DeConde in order to produce a fingerprint reading device having row leads having wide and narrow portions, where the wide portions are connected to the first electrodes. It would be apparent to one of ordinary skill in the art that the wide portions of row leads would allow for a larger area for Vias **40** to be more easily photolithographically patterned and etched.

7. Claims 5 and 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeConde as applied to claim 1 above and further in view of Tamori (US 5,526,701). The teaching of DeConde has been discussed above.

However, DeConde fails to specifically teach all of the first wires and all of the second wires extend outwardly from the outermost peripheral boundary portion where sensor sections along the outermost periphery are disposed.

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Tamori teaches all of the first wires and all of the second wires (see figure 1 and "electrode lines **20, 30**" column 4, lines 3-6) extend outwardly from the outermost peripheral boundary portion where sensor sections along the outermost periphery are disposed (see figure 1 and "electrode lines **20, 30** are gathered on edges A, B" column 4, lines 5-6).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate all the first wires and all the second wires gathered at the edges as taught by Tamori to the teachings of DeConde in order to produce a fingerprint reading device having all of the first and seconds wires to extend outwardly from the outermost peripheral boundary portion where the sensor section along the outermost periphery are disposed in order to allow the electrode lines gathered on the edges of the base plate to be connected to an external circuit via connectors (column , lines 5-7).

Further, parameters such as length and distance in the art of semiconductor manufacturing process are subject to routine experimentation and optimization to achieve the desired device characteristics during fabrication. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the length as claimed in the combined structure.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeConde as applied to claim 1 above and further in view of Jarvis et al. (US 4,539,554; hereinafter "Jarvis"). The teaching of DeConde has been discussed above.

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However, DeConde fails to specifically teach dummy sensor sections are disposed in the outermost peripheral portion of a region including the sensor sections. Jarvis teaches a dummy reference cell 39 included in each column of the array, where each dummy cell is of an identical structure to transducers (see figure 3 and column 4, lines 36-41).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate a dummy reference cell in each column as taught by Jarvis to the teachings of DeConde in order to produce a fingerprint reading device having dummy sensor sections disposed in each column set the cell dc reference potenion prior to sensing (column 4, lines 36-42).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeConde as applied to claim 8 above and further in view of McClure (US 5,898,235). The teachings of DeConde have been discussed above.

However, DeConde fails to specifically teach contact layers are formed with polycrystalline silicon.

McClure teaches the fabrication of a resistor in an integrated circuit device constructed in a strip of high resistivity polycrystalline silicon (see column 5, lines 25-30).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate construction of a resistor using polycrystalline silicon as taught by McClure to the teachings of DeConde in order to produce a fingerprint

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reading device having contact layers connecting first wires and first electrodes formed of polycrystalline silicon, which is commonly known to provide high resistance value (column 5, line 28).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,400,662, US 5,429,006, US 6,234,031 B1, US 6,829,950 B2, US 2005/0172722 A1, and US 2005/0284229 A1.

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

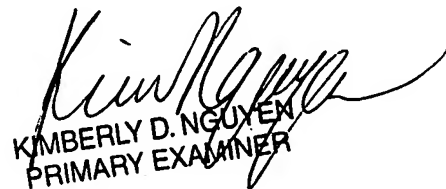
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse Y. Miyoshi whose telephone number is (571) 270-1629. The examiner can normally be reached on M-F 7:30AM-5:00PM EST. Alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Nguyen can be reached on (571) 272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JYM


KIMBERLY D. NGUYEN
PRIMARY EXAMINER